THE INSTITUTION
OF ELECTRICAL
ENGINEERS

IEE

IEE PROCEEDINGS

Microwaves, Antennas and Propagation

Vol. 141, 1994

Published by
The IEE, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

IEE Proceedings

Microwaves, Antennas and Propagation

The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

Volume 141 1994 UK ISSN 1350-2417

HONORARY EDITORS

Prof. J. Helszajn (*Heriot-Watt University*)
Prof. P. Hall (*University of Birmingham*)

Pages in issues of *IEE Proc.-Microw. Antennas Propag.*, 1994

Pages	Issue No.	Date
1–64	1	February
65–144	2	April
145–240	3	June
241–336	4	August
337–432	5	October
433–544	6	December

This publication is copyright under the Berne Convention and the Universal Copyright Convention. All rights reserved. Apart from any copying under the UK Copyright, Designs and Patents Act 1988, Part 1, Section 38, whereby a single copy of an article may be supplied, under certain conditions, for the purposes of research or private study, by a library of a class prescribed by The Copyright (Librarians and Archivists) (Copying of Copyright Material) Regulations 1989: SI 1989/1212, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is, however, not required to copy abstracts of papers or articles on condition that a full reference to the source is shown.

Authorisation to photocopy items for internal or personal use, or for the internal or personal use of specific clients, is granted by the Institution of Electrical Engineers for libraries and other users registered with the Copyright Clearance Center Transactional Reporting Service, provided that the base fee of $7.50 per copy is paid directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA. 1350-2417/94 $7.50 + 0.00. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

The telephone number of the IEE London office is 071 240 1871; telex: 261176 IEELDN G; facsimile: 071 240 77 35.

The IEE is not as a body responsible for the opinions expressed by individual authors.
The IEE is a member of the Association of Learned & Professional Society Publishers.

© 1994: The Institution of Electrical Engineers

Secretary of the IEE: J.C. Williams, PhD, FEng, FIEE
Managing Editor: Gill Wheeler; *Executive Editor:* Kerry Blewett
Graphics Manager: Maurice Partridge

Typeset by: Santype International Limited, Salisbury, Wiltshire, United Kingdom
Printed by: Black Bear Press Limited, Cambridge, United Kingdom

Index

IEE Proceedings
Microwaves, Antennas and Propagation
Vol. 141, 1994

Author index

A

Abdulnour, J., Wu, K., Akyel, C., Marchildon, L., and Bosisio, R.G. Modelling of arbitrarily shaped MMIC and hybrid planar circuits with a mixed waveguide model boundary integral method p495
Adeniran, S.A. Technique for modelling resonant strip placed in the transverse plane of a rectangular waveguide p329
Ahmed, K.M., Matthews, P.A., and Hu, Y.F. see Matthews, P.A.
Akyel, C., Abdulnour, J., Wu, K., Marchildon, L., and Bosisio, R.G. see Abdulnour, J.
Al-Nuaimi, M.O., and Hammoudeh, A.M. Measurements and predictions of attenuation and scatter of microwave signals by trees p70
Alam, Md.S., Hirayama, K., Hayashi, Y., and Koshiba, M. Finite element analysis of propagating, evanescent, and complex modes in finlines p65
Allnutt, R.M., Pratt, T., Stutzman, W.L., and Snider, J.B. Use of radiometers in atmospheric attenuation measurements p428
Andersen, J.B. Transition zone diffraction by multiple edges p382
Andrasic, G., and James, J.R. see James, J.R.
Arnold, J.M., and Dendane, A. see Dendane, A.
Arora, R.K., and Lu, Z. Graphical study of Laguerre–Gaussian beam modes p145
Au, T.M., Tong, K.F., and Luk, K.M. Analysis of offset dual-patch microstrip antenna p523
Auchterlonie, L.J., and Fletcher, P.N. see Fletcher, P.N.
Austin, B.A., and Murray, K.P. see Murray, K.P.

B

Bartolucci, G., Giannini, F., and Paoloni, C. Equivalent circuit model for microstrip multiport radial dividers p333
Barton, S.K., Guo, Y.J., and Sassi, I.H. see Guo, Y.J.
Bodrov, V.V., and Lavretskii, E.I. see Lavretskii, E.I.
Bolioli, S., Douchin, N., Christophe, F., and Combes, P. see Douchin, N.
Boonzaaier, J.J., and Pistonius, C.W.I. Finite-difference time-domain field approximations for thin wires with a lossy coating p107
Bor, S.-S., Liu, J.-C., Chang, C.-C., and Lu, P.-C. see Liu, J.-C.
Bosisio, R.G., Abdulnour, J., Wu, K., Akyel, C., and Marchildon, L. see Abdulnour, J.
Bosisio, R.G., Ghannouchi, F.M., and Xu, Y. see Ghannouchi, F.M.
Bucci, O.M., Gennarelli, C., Riccio, G., and Savarese, C. Electromagnetic fields interpolation from nonuniform samples over spherical and cylindrical surfaces p77
Burchett, M.H., Pennock, S.R., and Shepherd, P.R. Rigorous analysis of the higher order modes, impedance and attenuation factor of coupled striplines p167
Butler, C.M., and Mathis, A.W. see Mathis, A.W.

C

Callaghan, P., and Parker, E.A. Tuning interactions of cascaded-frequency selective-slot arrays p290
Caorsi, S., Gragnani, G.L., Pastorino, M., and Sartore, M. Electromagnetic imaging of infinite dielectric cylinders using a modified Born approximation and including *a priori* information on the unknown cross sections p445
Carpentier, J.F., Pribetich, P., and Kennis, P. Quasi-static analysis of skewed transmission lines for MMIC applications p246
Chang, C.-C., Liu, J.-C., Bor, S.-S., and Lu, P.-C. see Liu, J.-C.
Chang, C.-N., and Cheng, J.-F. Fullwave analysis of multilayer microstrip lines p185
Chen, H. Symbolic analysis of large-scale microwave networks p433
Chen, Y.-Y., Jiang, X.-H., Hong, W., and Han, L. see Jiang, X.-H.
Cheng, J.-F., and Chang, C.-N. see Chang, C.-N.
Chrissoulidis, D.P., and Papadopoulos, A.I. see Papadopoulos, A.I.
Christophe, F., Douchin, N., Bolioli, S., and Combes, P. see Douchin, N.
Clarricoats, P.J.B., Monk, A.D., and Zhou, H. Array-fed reconfigurable reflector for spacecraft applications p531
Combes, P., Douchin, N., Bolioli, S., and Christophe, F. see Douchin, N.
Cory, H., and Waxman, S. Wave propagation along a fully or a partially loaded parallel plate chirowaveguide p299
Cruz, J.L., Navarro, E.A., Gallart, L., Gimeno, B., and Such, V. see Navarro, E.A.

D

D'Agostino, S., D'Inzeo, G., Gatti, G., and Marietti, P. Low-DC power 2–18 GHz monolithic matrix amplifier p440
D'Inzeo, G., D'Agostino, S., Gatti, G., and Marietti, P. see D'Agostino, S.
Damiano, J.P., and Papiernik, A. Survey of analytical and numerical models for probe-fed microstrip antennas p15
Dendane, A., and Arnold, J.M. Scattered field analysis of a focused reflector using the Gabor series p216
Di, X., Glisson, A.W., and Michalski, K.A. Analysis of a dielectric resonator antenna in a cylindrical conducting cavity: HEM modes p8
Douchin, N., Bolioli, S., Christophe, F., and Combes, P. Theoretical study of the evaporation duct effects on satellite-to-ship radio links near the horizon p272

E

El-Sheikh, A.N.A., and Langley, R.J. Multiport network analysis of frequency-selective surfaces p229
Er, M.H., Ng, B.P., and Kot, C. see Ng, B.P.

F

Fletcher, P.N., and Auchterlonie, L.J. Detailed computation of the effects on the performance of open resonators caused by imperfections in the resonator geometry p451
Frezza, F., Guglielmi, M., and Lampariello, P. Millimetre-wave leaky-wave antennas based on slitted asymmetric ridge waveguides p175
Fu, J., and Zhang, F. see Zhang, F.
Fusco, V.F., and Sancheti, S. see Sancheti, S.

G

Gallart, L., Navarro, E.A., Cruz, J.L., Gimeno, B., and Such, V. see Navarro, E.A.
Gatti, G., D'Agostino, S., D'Inzeo, G., and Marietti, P. see D'Agostino, S.
Gennarelli, C., Bucci, O.M., Riccio, G., and Savarese, C. see Bucci, O.M.
Gevorgian, S.S., Kaparkov, D.I., and Vendik, O.G. Electrically controlled HTSC/ferroelectric coplanar waveguide p501
Ghannouchi, F.M., Xu, Y., and Bosisio, R.G. One-step connection method for the measurement of *N*-port microwave networks using six-port techniques p285
Giannini, F., Bartolucci, G., and Paoloni, C. see Bartolucci, G.
Gillick, M., Robertson, I.D., and Joshi, J.S. Coplanar waveguide two-stage balanced MMIC amplifier using impedance-transforming lumped-distributed branchline couplers p241
Gimeno, B., Navarro, E.A., Gallart, L., Cruz, J.L., and Such, V. see Navarro, E.A.
Glisson, A.W., Di, X., and Michalski, K.A. see Di, X.
Gluiber, A., Greve, A., Morris, D., Johansson, L.E.B., and Whyborn, N.D. see Greve, A.
Gnilenko, A.B., Petrusenko, I.V., and Yakovelev, A.B. see Petrusenko, I.V.
Gómez Martín, R., Salinas, A., Rubio Bretones, A., and Sánchez Garcia, I. see Salinas, A.
Gragnani, G.L., Caorsi, S., Pastorino, M., and Sartore, M. see Caorsi, S.
Greve, A., Morris, D., Johansson, L.E.B., Whyborn, N.D., and Gluiber, A. Precision of radio reflector surfaces adjusted from theodolite–tape measurements p23
Guglielmi, M., Frezza, F., and Lampariello, P. see Frezza, F.
Guo, Y.J., Sassi, I.H., and Barton, S.K. Offset Fresnel Lens Antenna p517

H

Haidara, F., Stutzman, W.L., and Remaklus, P.W. see Stutzman, W.L.
Hall, P.S., and Morrow, I.L. Analysis of radiation from active microstrip antennas p359
Hall, P.S., and Smith, M.S. see Smith, M.S.
Hall, P.S., and Smith, M.S. Sequentially rotated arrays with reduced sidelobe levels p321
Hammoudeh, A.M., and Al-Nuaimi, M.O. see Al-Nuaimi, M.O.
Han, L., Jiang, X.-H., Hong, W., and Chen, Y.-Y. see Jiang, X.-H.
Haneishi, M., Kuwahara, Y., Matsuzawa, Y., and Kitahara, H. see Kuwahara, Y.
Haslett, C.J. Modelling and measurement of the diffraction of microwaves by buildings p397
Hayashi, Y., Alam, Md.S., Hirayama, K., and Koshiba, M. see Alam, Md.S.
Helszajn, J. Experimental evaluation of junction circulators: a review p351
Hirayama, K., Alam, Md.S., Hayashi, Y., and Koshiba, M. see Alam, Md.S.
Hong, W., Jiang, X.-H., Chen, Y.-Y., and Han, L. see Jiang, X.-H.
Hu, Y.F., Matthews, P.A., and Ahmed, K.M. see Matthews, P.A.
Hu, Y.F., and Watson, P.A. see Watson, P.A.
Huang, F. Frequency dependent transmission line loss in quasitransversal microwave filters p402
Huang, K., Lin, W., and Lin, Y. Characteristic impedance of rectangular coaxial cone transmission line p326

I

Ito, S., and Oguchi, T. Circular depolarisation ratio of radar returns from rain: validity of the second-order solution of RT equation p257
Ivrissimtzis, L.P., and Marhefka, R.J. Edge-wave diffraction for flat-plate structures p30
Iwashige, J., and Kaku, H. GTD fields at shadow and reflection boundaries of a polygonal cylinder p232

J

James, J.R., and Andrasic, G. Environmental coupling loss effects in superconducting HF loop antenna design p94
Janse van Rensburg, D.J., and van der Merwe, A. see Van der merwe, A.
Jensen, M.A., and Rahmat-Samii, Y. Characterisation of electromagnetically coupled superquadric loop antennas for mobile communications applications p85
Jiang, X.-H., Hong, W., Chen, Y.-Y., and Han, L. Theoretical and experimental investigations on orthogonal mode coupler p261
Jin, H., Lin, W., and Lin, Y. Dyadic Green's functions for rectangular waveguide filled with longitudinally multilayered isotropic dielectric and their application p504
Johansson, L.E.B., Greve, A., Morris, D., Whyborn, N.D., and Gluiber, A. see Greve, A.
Joshi, J.S., Gillick, M., and Robertson, I.D. see Gillick, M.
Joshi, K.K., Pollard, R.D., and Postoyalko, V. Microstrip with dielectric overlay: variational analysis and validation p138

K

Kaku, H., and Iwashige, J. see Iwashige, J.
Kaparkov, D.I., Gevorgian, S.S., and Vendik, O.G. see Gevorgian, S.S.
Keam, R.B., and Williamson, A.G. Broadband design of coaxial line/rectangular waveguide probe transition p53

Kennis, P., Carpentier, J.F., and Pribetich, P. see Carpentier, J.F.
Kitahara, H., Kuwahara, Y., Matsuzawa, Y., and Haneishi, M. see Kuwahara, Y.
Kolbehdari, M.A. Scattering from a dielectric circular cylinder partially clad by a perfect electric conductor p536
Kolundžija, B.M., and Popović, B.D. General localised junction model in the analysis of wire-to-plate junctions p1
Kolundžija, B.M., and Popović, B.D. Simplified treatment of wire-to-plate junctions with magnetic-current frill excitation p133
Kominami, M., Wakabayashi, H., Kusaka, H., and Nakashima, H. see Wakabayashi, H.
Kooi, P.S., Leong, M.S., Ooi, B.L., and Xu, Q.J. Recursive algorithm for noise analysis of a two-port network with arbitrary internal topology using the S-wave approach p458
Kooi, P.S., Wang, B.K., Lam, K.Y., and Leong, M.S. see Wang, B.K.
Koshiba, M., Alam, Md.S., Hirayama, K., and Hayashi, Y. see Alam, Md.S.
Kot, C., Ng, B.P., and Er, M.H. see Ng, B.P.
Kusaka, H., Wakabayashi, H., Kominami, M., and Nakashima, H. see Wakabayashi, H.
Kuwahara, Y., Matsuzawa, Y., Kitahara, H., and Haneishi, M. Phased array antenna with a multilayer substrate p295

L

Lam, K.Y., Wang, B.K., Leong, M.S., and Kooi, P.S. see Wang, B.K.
Lampariello, P., Frezza, F., and Guglielmi, M. see Frezza, F.
Langley, R.J., and El-Sheikh, A.N.A. see El-Sheikh, A.N.A.
Larsen, T. Extended effective output noise temperatures of multiresponse systems p393
Lavretskii, E.I., and Bodrov, V.V. Scattering from a rectangular aperture in rectangular-to-circular and circular-to-circular waveguide junctions p489
Lavretsky, E.I. Taking into account the edge condition in the problem of scattering from the circular aperture in circular-to-rectangular and rectangular-to-rectangular waveguide junctions p45
Legay, H., and Shafai, L. New stacked microstrip antenna with large bandwidth and high gain p199
Leong, M.S., Kooi, P.S., Ooi, B.L., and Xu, Q.J. see Kooi, P.S.
Leong, M.S., Wang, B.K., Lam, K.Y., and Kooi, P.S. see Wang, B.K.
Leroy, Y., and Waro, P. see Waro, P.
Leung, K.W., and Luk, K.M. Moment method solution of aperture-coupled hemispherical dielectric resonator antenna using exact modal Green's function p377
Li, Y.L., and Liu, C.H. Simplified Green's functions for calculating capacitance and inductance of multiconductor transmission lines in multilayered media p141
Liang, C., Zhang, L., and Wang, P. see Zhang, L.
Lin, W., Huang, K., and Lin, Y. see Huang, K.
Lin, W., Jin, H., and Lin, Y. see Jin, H.
Lin, Y., Huang, K., and Lin, W. see Huang, K.
Lin, Y., Jin, H., and Lin, W. see Jin, H.
Lindell, I.V., and Weiglhofer, W.S. Green dyadic and dipole fields for a medium with anisotropic chirality p211
Liu, C.H., and Li, Y.L. see Li, Y.L.
Liu, J.-C., Bor, S.-S., Chang, C.-C., and Lu, P.-C. Modified determinations of stability criteria for accurate designing the linear two-port amplifiers p238
Liu, R., Zhang, Q.-J., and Nakhla, M. Successive asymptotic waveform evaluation of lossy distributed networks with nonlinear terminations p473
Lu, P.-C., Liu, J.-C., Bor, S.-S., and Chang, C.-C. see Liu, J.-C.
Lu, Z., and Arora, R.K. see Arora, R.K.
Luk, K.M., Au, T.M., and Tong, K.F. see Au, T.M.
Luk, K.M., and Leung, K.W. see Leung, K.W.

M

Marchildon, L., Abdulnour, J., Wu, K., Akyel, C., and Bosisio, R.G. see Abdulnour, J.
Marhefka, R.J., and Ivrissimtzis, L.P. see Ivrissimtzis, L.P.
Marietti, P., D'Agostino, S., D'Inzeo, G., and Gatti, G. see D'Agostino, S.
Mathis, A.W., and Butler, C.M. Capacitance of circularly symmetric via for microstrip transmission line p265
Matsuzawa, Y., Kuwahara, Y., Kitahara, H., and Haneishi, M. see Kuwahara, Y.
Matthews, P.A., Hu, Y.F., and Ahmed, K.M. Theoretical analysis of VHF–UHF propagation through air–vegetation–ground media p415
McNamara, D.A. Performance of Zolotarev and modified-Zolotarev difference pattern array distributions p37
Michalski, K.A., Di, X., and Glisson, A.W. see Di, X.
Monk, A.D., Clarricoats, P.J.B., and Zhou, H. see Clarricoats, P.J.B.
Morris, D., Greve, A., Johansson, L.E.B., Whyborn, N.D., and Gluiber, A. see Greve, A.
Morrow, I.L., and Hall, P.S. see Hall, P.S.
Murray, K.P., and Austin, B.A. Synthesis of vehicular antenna NVIS radiation patterns using the method of characteristic modes p151

N

Nakashima, H., Wakabayashi, H., Kominami, M., and Kusaka, H. see Wakabayashi, H.
Nakhla, M., Liu, R., and Zhang, Q.-J. see Liu, R.
Navarro, E.A., Gallart, L., Cruz, J.L., Gimeno, B., and Such, V. Accurate absorbing boundary conditions for the FDTD analysis of H-plane waveguide discontinuities p59
Neve, M.J., and Rowe, G.B. Contributions towards the development of a UTD-based model for cellular radio propagation prediction p407
Ng, B.P., Er, M.H., and Kot, C. Linear array geometry synthesis with minimum sidelobe level and null control p162

O

Oguchi, T., and Ito, S. see Ito, S.
Olver, A.D., and Philips, B. see Philips, B.
Ooi, B.L., Kooi, P.S., Leong, M.S., and Xu, Q.J. see Kooi, P.S.

P

Paoloni, C., Bartolucci, G., and Giannini, F. see Bartolucci, G.
Papachristoforos, A. Method of lines for analysis of planar conductors with finite thickness p223
Papadopoulos, A.I., and Chrissoulidis, D.P. EM wave scattering by a dihedral strip grating p155
Papiernik, A., and Damiano, J.P. see Damiano, J.P.
Parini, C.G., and Philippakis, M. see Philippakis, M.
Parker, E.A., and Callaghan, P. see Callaghan, P.
Pastorino, M., Caorsi, S., Gragnani, G.L., and Sartore, M. see Caorsi, S.
Pennock, S.R., Burchett, M.H., and Shepherd, P.R. see Burchett, M.H.
Pereda, J.A., Vielva, L.A., Vegas, A., and Prieto, A. see Vielva, L.A.
Petrusenko, I.V., Yakovelev, A.B., and Gnilenko, A.B. Method of partial overlapping regions for the analysis of diffraction problems p196
Philippakis, M., and Parini, C.G. Diffraction effects of a tape covering the gaps of a panelled 'compact range' operating at millimetre waves p114
Philips, B., and Olver, A.D. Design and performance of profiled dielectric loaded horns p337
Pistonius, C.W.I., and Boonzaaier, J.J. see Boonzaaier, J.J.
Pollard, R.D., Joshi, K.K., and Postoyalko, V. see Joshi, K.K.
Popović, B.D., and Kolundžija, B.M. see Kolundžija, B.M.
Postoyalko, V., Joshi, K.K., and Pollard, R.D. see Joshi, K.K.
Pratt, T., Allnutt, R.M., Stutzman, W.L., and Snider, J.B. see Allnutt, R.M.
Pribetich, P., Carpentier, J.F., and Kennis, P. see Carpentier, J.F.
Prieto, A., Vielva, L.A., Pereda, J.A., and Vegas, A. see Vielva, L.A.

Q

Qiao, L., and Yeo, S.P. see Yeo, S.P.

R

Rahmat-Samii, Y., and Jensen, M.A. see Jensen, M.A.
Remaklus, P.W., Stutzman, W.L., and Haidara, F. see Stutzman, W.L.
Ren, W., and Wu, X.-B. see Wu, X.-B.
Riccio, G., Bucci, O.M., Gennarelli, C., and Savarese, C. see Bucci, O.M.
Robertson, I.D., Gillick, M., and Joshi, J.S. see Gillick, M.
Rojas, R.G. Integral equations for EM scattering by homogeneous/inhomogeneous two-dimensional chiral bodies p385
Rowe, G.B., and Neve, M.J. see Neve, M.J.
Rubio Bretones, A., Salinas, A., Gómez Martín, R., and Sánchez García, I. see Salinas, A.

S

Sánchez García, I., Salinas, A., Gómez Martín, R., and Rubio Bretones, A. see Salinas, A.
Salinas, A., Gómez Martín, R., Rubio Bretones, A., and Sánchez García, I. Modelling of straight thin wires using time-domain electric field integral equations p123
Sancheti, S., and Fusco, V.F. Active antenna top-cover frequency pulling effects p374
Sancheti, S., and Fusco, V.F. Self detection performance of an FET active patch antenna under injection locking and its application for PM signal detection p253
Sangster, A.J., and Smith, P. Optimisation of radiation efficiency for a transverse ground-plane slot in boxed-stripline p509
Sartore, M., Caorsi, S., Gragnani, G.L., and Pastorino, M. see Caorsi, S.
Sassi, I.H., Guo, Y.J., and Barton, S.K. see Guo, Y.J.
Savarese, C., Bucci, O.M., Gennarelli, C., and Riccio, G. see Bucci, O.M.
Shafai, L., and Legay, H. see Legay, H.
Shen, Z.-X. Electromagnetic scattering by an impedance cylinder coated eccentrically with a chiroplasma cylinder p279
Shepherd, P.R., Burchett, M.H., and Pennock, S.R. see Burchett, M.H.
Shillue, W.P., and Wu, T.K. see Wu, T.K.
Shuley, N.V., and Waterhouse, R.B. see Waterhouse, R.B.
Singh, R., and Singh, S. Efficient evaluation of singular and infinite integrals using the tanh transformation p464
Singh, S., and Singh, R. see Singh, R.
Smith, M.S., and Hall, P.S. see Hall, P.S.
Smith, M.S., and Hall, P.S. Analysis of radiation pattern effects in sequentially rotated arrays p313
Smith, P., and Sangster, A.J. see Sangster, A.J.
Snider, J.B., Allnutt, R.M., Pratt, T., and Stutzman, W.L. see Allnutt, R.M.
Stutzman, W.L., Allnutt, R.M., Pratt, T., and Snider, J.B. see Allnutt, R.M.
Stutzman, W.L., Haidara, F., and Remaklus, P.W. Correction of satellite beacon propagation data using radiometer measurements p62
Such, V., Navarro, E.A., Gallart, L., Cruz, J.L., and Gimeno, B. see Navarro, E.A.

T

Tong, K.F., Au, T.M., and Luk, K.M. see Au, T.M.
Tosun, H. Novel differential formulation of electromagnetic scattering by dielectric cylinders of arbitrary cross-section p189

V

Van der merwe, A., and Janse van Rensburg, D.J. Main-beam reduction for compact range imaging p461
Vegas, A., Vielva, L.A., Pereda, J.A., and Prieto, A. see Vielva, L.A.
Vendik, O.G., Gevorgian, S.S., and Kaparkov, D.I. see Gevorgian, S.S.
Vielva, L.A., Pereda, J.A., Vegas, A., and Prieto, A. Simulating 3D waveguide discontinuities using a combination of Prony's method and FDTD with improved absorbing boundary conditions p127

W

Wakabayashi, H., Kominami, M., Kusaka, H., and Nakashima, H. Numerical simulations for frequency-selective screens with complementary elements p477
Wang, B.K., Lam, K.Y., Leong, M.S., and Kooi, P.S. Elliptical waveguide analysis using improved polynomial approximation p483
Wang, P., Zhang, L., and Liang, C. see Zhang, L.
Waro, P., and Leroy, Y. Thermometry of lossy microstriplines by correlation radiometry p307
Waterhouse, R.B., and Shuley, N.V. Full characterisation of varactor-loaded, probe-fed, rectangular, microstrip patch antennas p367
Watson, P.A., and Hu, Y.F. Prediction of attenuation on satellite–earth links for systems operating with low fade margins p467
Waxman, S., and Cory, H. see Cory, H.
Weiglhofer, W.S., and Lindell, I.V. see Lindell, I.V.
Whyborn, N.D., Greve, A., Morris, D., Johansson, L.E.B., and Gluiber, A. see Greve, A.
Williamson, A.G., and Keam, R.B. see Keam, R.B.
Wu, K., Abdulnour, J., Akyel, C., Marchildon, L., and Bosisio, R.G. see Abdulnour, J.
Wu, T.K., and Shillue, W.P. Dichroic design for the orbiting VLBI earth station antenna p181
Wu, X., Xu, S., and Yoneyama, T. see Xu, S.
Wu, X.-B., and Ren, W. Axial slot antenna on an anisotropic dielectric-coated circular cylinder p527

X

Xu, Q.J., Kooi, P.S., Leong, M.S., and Ooi, B.L. see Kooi, P.S.
Xu, S., Wu, X., and Yoneyama, T. Scattering properties of discontinuities in NRD guide p205
Xu, Y., Ghannouchi, F.M., and Bosisio, R.G. see Ghannouchi, F.M.

Y

Yakovelev, A.B., Petrusenko, I.V., and Gnilenko, A.B. see Petrusenko, I.V.
Yeo, S.P., and Qiao, L. Symmetrical five-port waveguide junction with −20 dB residual mismatch over waveguide bandwidth p101
Yoneyama, T., Xu, S., and Wu, X. see Xu, S.

Z

Zhang, F., and Fu, J. Rigorous analysis of lunar waveguides with the boundary element method p235
Zhang, L., Wang, P., and Liang, C. Resonant frequencies and Q-factors of a spherical cavity loaded by an eccentric dielectric sphere p342
Zhang, Q.-J., Liu, R., and Nakhla, M. see Liu, R.
Zhou, H., Clarricoats, P.J.B., and Monk, A.D. see Clarricoats, P.J.B.
Zhou, X. Novel method of calculating the characteristic impedance of a coaxial transmission line of arbitrary cross-section p423

Subject index

AMPLIFIERS

Coplanar waveguide two-stage balanced MMIC amplifier using impedance-transforming lumped-distributed branchline couplers. M. Gillick, I.D. Robertson and J.S. Joshi p241
Low-DC power 2–18 GHz monolithic matrix amplifier. S. D'Agostino, G. D'Inzeo, G. Gatti and P. Marietti p440
Modified determinations of stability criteria for accurate designing the linear two-port amplifiers. J.-C. Liu, S.-S. Bor, C.-C. Chang and P.-C. Lu p238

ANTENNAS

Diffraction effects of a tape covering the gaps of a panelled 'compact range' operating at millimetre waves. M. Philippakis and C.G. Parini p114
Edge-wave diffraction for flat-plate structures. L.P. Ivrissimtzis and R.J. Marhefka p30
Multiport network analysis of frequency-selective surfaces. A.N.A. El-Sheikh and R.J. Langley p229
Phased array antenna with a multilayer substrate. Y. Kuwahara, Y. Matsuzawa, H. Kitahara and M. Haneishi p295

ANTENNAS (ACTIVE)

Active antenna top-cover frequency pulling effects. S. Sancheti and V.F. Fusco p374
Analysis of radiation from active microstrip antennas. P.S. Hall and I.L. Morrow p359
New stacked microstrip antenna with large bandwidth and high gain. H. Legay and L. Shafai p199
Self detection performance of an FET active patch antenna under injection locking and its application for PM signal detection. S. Sancheti and V.F. Fusco p253

ANTENNAS (ARRAYS)

Array-fed reconfigurable reflector for spacecraft applications. P.J.B. Clarricoats, A.D. Monk and H. Zhou p531
EM wave scattering by a dihedral strip grating. A.I. Papadopoulos and D.P. Chrissoulidis p155
Tuning interactions of cascaded-frequency selective-slot arrays. P. Callaghan and E.A. Parker p290

ANTENNAS (HORNS AND FEEDS)

Design and performance of profiled dielectric loaded horns. B. Philips and A.D. Olver p337

ANTENNAS (MICROSTRIP)

Analysis of offset dual-patch microstrip antenna. T.M. Au, K.F. Tong and K.M. Luk p523
Full characterisation of varactor-loaded, probe-fed, rectangular, microstrip patch antennas. R.B. Waterhouse and N.V. Shuley p367
Moment method solution of aperture-coupled hemispherical dielectric resonator antenna using exact modal Green's function. K.W. Leung and K.M. Luk p377
New stacked microstrip antenna with large bandwidth and high gain. H. Legay and L. Shafai p199
Phased array antenna with a multilayer substrate. Y. Kuwahara, Y. Matsuzawa, H. Kitahara and M. Haneishi p295
Survey of analytical and numerical models for probe-fed microstrip antennas. J.P. Damiano and A. Papiernik p15

ANTENNAS (MILLIMETRE WAVE)

Millimetre-wave leaky-wave antennas based on slitted asymmetric ridge waveguides. F. Frezza, M. Guglielmi and P. Lampariello p175

ANTENNAS (REFLECTORS)

Dichroic design for the orbiting VLBI earth station antenna. T.K. Wu and W.P. Shillue p181
Scattered field analysis of a focused reflector using the Gabor series. A. Dendane and J.M. Arnold p216

ANTENNAS (SLOT)

Analysis of offset dual-patch microstrip antenna. T.M. Au, K.F. Tong and K.M. Luk p523
Axial slot antenna on an anisotropic dielectric-coated circular cylinder. X.-B. Wu and W. Ren p527
Moment method solution of aperture-coupled hemispherical dielectric resonator antenna using exact modal Green's function. K.W. Leung and K.M. Luk p377

ANTENNAS (THEORY)

Analysis of a dielectric resonator antenna in a cylindrical conducting cavity: HEM modes. X. Di, A.W. Glisson and K.A. Michalski p8
Characterisation of electromagnetically coupled superquadric loop antennas for mobile communications applications. M.A. Jensen and Y. Rahmat-Samii p85
Finite-difference time-domain field approximations for thin wires with a lossy coating. J.J. Boonzaaier and C.W.I. Pistonius p107
GTD fields at shadow and reflection boundaries of a polygonal cylinder. J. Iwashige and H. Kaku p232
Offset Fresnel Lens Antenna. Y.J. Guo, I.H. Sassi and S.K. Barton p517

ARRAY PROCESSING

Analysis of radiation pattern effects in sequentially rotated arrays. M.S. Smith and P.S. Hall p313
Linear array geometry synthesis with minimum sidelobe level and null control. B.P. Ng, M.H. Er and C. Kot p162
Performance of Zolotarev and modified-Zolotarev difference pattern array distributions. D.A. McNamara p37
Sequentially rotated arrays with reduced sidelobe levels. P.S. Hall and M.S. Smith p321

CIRCUIT THEORY AND DESIGN

Equivalent circuit model for microstrip multiport radial dividers. G. Bartolucci, F. Giannini and C. Paoloni p333
Symbolic analysis of large-scale microwave networks. H. Chen p433

COAXIAL COMPONENTS

Novel method of calculating the characteristic impedance of a coaxial transmission line of arbitrary cross-section. X. Zhou p423

CONDUCTORS AND CONDUCTIVITY

Resonant frequencies and Q-factors of a spherical cavity loaded by an eccentric dielectric sphere. L. Zhang, P. Wang and C. Liang p342

DETECTION

Self detection performance of an FET active patch antenna under injection locking and its application for PM signal detection. S. Sancheti and V.F. Fusco p253

DIELECTRIC MATERIALS

Capacitance of circularly symmetric via for microstrip transmission line. A.W. Mathis and C.M. Butler p265
Microstrip with dielectric overlay: variational analysis and validation. K.K. Joshi, R.D. Pollard and V. Postoyalko p138
Numerical simulations for frequency-selective screens with complementary elements. H. Wakabayashi, M. Kominami, H. Kusaka and H. Nakashima p477
Scattering from a dielectric circular cylinder partially clad by a perfect electric conductor. M.A. Kolbehdari p536
Scattering properties of discontinuities in NRD guide. S. Xu, X. Wu and T. Yoneyama p205

DIODES

Full characterisation of varactor-loaded, probe-fed, rectangular, microstrip patch antennas. R.B. Waterhouse and N.V. Shuley p367

ELECTROMAGNETIC COMPATIBILITY

Characteristic impedance of rectangular coaxial cone transmission line. K. Huang, W. Lin and Y. Lin p326

ELECTROMAGNETIC THEORY

Efficient evaluation of singular and infinite integrals using the tanh transformation. R. Singh and S. Singh p464
Electromagnetic fields interpolation from nonuniform samples over spherical and cylindrical surfaces. O.M. Bucci, C. Gennarelli, G. Riccio and C. Savarese p77
Electromagnetic scattering by an impedance cylinder coated eccentrically with a chiroplasma cylinder. Z.-X. Shen p279
Integral equations for EM scattering by homogeneous/inhomogeneous two-dimensional chiral bodies. R.G. Rojas p385
Novel differential formulation of electromagnetic scattering by dielectric cylinders of arbitrary cross-section. H. Tosun p189
Scattering from a rectangular aperture in rectangular-to-circular and circular-to-circular waveguide junctions. E.I. Lavretskii and V.V. Bodrov p489

FIELD-EFFECT TRANSISTORS

Method of partial overlapping regions for the analysis of diffraction problems. I.V. Petrusenko, A.B. Yakovelev and A.B. Gnilenko p196

FILTERS AND FILTERING

Frequency dependent transmission line loss in quasitransversal microwave filters. F. Huang p402

GRAPH THEORY AND TOPOLOGY

Graphical study of Laguerre–Gaussian beam modes. R.K. Arora and Z. Lu p145

IMAGE PROCESSING

Electromagnetic imaging of infinite dielectric cylinders using a modified Born approximation and including *a priori* information on the unknown cross sections. S. Caorsi, G.L. Gragnani, M. Pastorino and M. Sartore p445

INSTRUMENTATION AND MEASURING SCIENCE

Rigorous analysis of the higher order modes, impedance and attenuation factor of coupled striplines. M.H. Burchett, S.R. Pennock and P.R. Shepherd p167
Thermometry of lossy microstriplines by correlation radiometry. P. Waro and Y. Leroy p307
Use of radiometers in atmospheric attenuation measurements. R.M. Allnutt, T. Pratt, W.L. Stutzman and J.B. Snider p428

MATHEMATICAL TECHNIQUES

Analysis of offset dual-patch microstrip antenna. T.M. Au, K.F. Tong and K.M. Luk p523
Efficient evaluation of singular and infinite integrals using the tanh transformation. R. Singh and S. Singh p464
One-step connection method for the measurement of *N*-port microwave networks using six-port techniques. F.M. Ghannouchi, Y. Xu and R.G. Bosisio p285
Recursive algorithm for noise analysis of a two-port network with arbitrary internal topology using the S-wave approach. P.S. Kooi, M.S. Leong, B.L. Ooi and Q.J. Xu p458
Simplified Green's functions for calculating capacitance and inductance of multiconductor transmission lines in multilayered media. Y.L. Li and C.H. Liu p141

MICROSTRIP AND STRIPLINE

Capacitance of circularly symmetric via for microstrip transmission line. A.W. Mathis and C.M. Butler p265
Fullwave analysis of multilayer microstrip lines. C.-N. Chang and J.-F. Cheng p185

Microstrip with dielectric overlay: variational analysis and validation. K.K. Joshi, R.D. Pollard and V. Postoyalko p138
Modelling of arbitrarily shaped MMIC and hybrid planar circuits with a mixed waveguide model boundary integral method. J. Abdulnour, K. Wu, C. Akyel, L. Marchildon and R.G. Bosisio p495
Thermometry of lossy microstriplines by correlation radiometry. P. Waro and Y. Leroy p307

MICROWAVE CIRCUITS AND NETWORKS

Experimental evaluation of junction circulators: a review. J. Helszajn p351
Modelling of arbitrarily shaped MMIC and hybrid planar circuits with a mixed waveguide model boundary integral method. J. Abdulnour, K. Wu, C. Akyel, L. Marchildon and R.G. Bosisio p495
One-step connection method for the measurement of *N*-port microwave networks using six-port techniques. F.M. Ghannouchi, Y. Xu and R.G. Bosisio p285
Symbolic analysis of large-scale microwave networks. H. Chen p433

MICROWAVE COMMUNICATIONS

Main-beam reduction for compact range imaging. A. van der Merwe and D.J. Janse van Rensburg p461
Measurements and predictions of attenuation and scatter of microwave signals by trees. M.O. Al-Nuaimi and A.M. Hammoudeh p70
Modelling and measurement of the diffraction of microwaves by buildings. C.J. Haslett p397

MICROWAVE PASSIVE COMPONENTS

Broadband design of coaxial line/rectangular waveguide probe transition. R.B. Keam and A.G. Williamson p53
Method of lines for analysis of planar conductors with finite thickness. A. Papachristoforos p223

MICROWAVE SYSTEMS

Detailed computation of the effects on the performance of open resonators caused by imperfections in the resonator geometry. P.N. Fletcher and L.J. Auchterlonie p451

MILLIMETRE WAVE DEVICES AND COMPONENTS

Finite element analysis of propagating, evanescent, and complex modes in finlines. Md.S. Alam, K. Hirayama, Y. Hayashi and M. Koshiba p65

NETWORKS

Multiport network analysis of frequency-selective surfaces. A.N.A. El-Sheikh and R.J. Langley p229

NOISE AND INTERFERENCE

Modelling and measurement of the diffraction of microwaves by buildings. C.J. Haslett p397
Recursive algorithm for noise analysis of a two-port network with arbitrary internal topology using the S-wave approach. P.S. Kooi, M.S. Leong, B.L. Ooi and Q.J. Xu p458

NUMERICAL ANALYSIS

Finite element analysis of propagating, evanescent, and complex modes in finlines. Md.S. Alam, K. Hirayama, Y. Hayashi and M. Koshiba p65

PERMITTIVITY

Green dyadic and dipole fields for a medium with anisotropic chirality. I.V. Lindell and W.S. Weiglhofer p211

RADAR AND RADIONAVIGATION

Circular depolarisation ratio of radar returns from rain: validity of the second-order solution of RT equation. S. Ito and T. Oguchi p257

RADIATION

Analysis of radiation from active microstrip antennas. P.S. Hall and I.L. Morrow p359

RADIO ASTRONOMY

Precision of radio reflector surfaces adjusted from theodolite–tape measurements. A. Greve, D. Morris, L.E.B. Johansson, N.D. Whyborn and A. Gluiber p23

RADIO-WAVE PROPAGATION (IONOSPHERIC)

Synthesis of vehicular antenna NVIS radiation patterns using the method of characteristic modes. K.P. Murray and B.A. Austin p151

RADIO-WAVE PROPAGATION (MICROWAVE)

Extended effective output noise temperatures of multiresponse systems. T. Larsen p393
Method of partial overlapping regions for the analysis of diffraction problems. I.V. Petrusenko, A.B. Yakovelev and A.B. Gnilenko p196
Precision of radio reflector surfaces adjusted from theodolite–tape measurements. A. Greve, D. Morris, L.E.B. Johansson, N.D. Whyborn and A. Gluiber p23

RADIO-WAVE PROPAGATION (TERRAIN EFFECTS)

Theoretical analysis of VHF–UHF propagation through air–vegetation–ground media. P.A. Matthews, Y.F. Hu and K.M. Ahmed p415
Transition zone diffraction by multiple edges. J.B. Andersen p382

RADIO-WAVE PROPAGATION (TROPOSPHERIC)

Contributions towards the development of a UTD-based model for cellular radio propagation prediction. M.J. Neve and G.B. Rowe p407
Theoretical study of the evaporation duct effects on satellite-to-ship radio links near the horizon. N. Douchin, S. Bolioli, F. Christophe and P. Combes p272

RADIOCOMMUNICATION

Synthesis of vehicular antenna NVIS radiation patterns using the method of characteristic modes. K.P. Murray and B.A. Austin p151

RADOMES

Tuning interactions of cascaded-frequency selective-slot arrays. P. Callaghan and E.A. Parker p290

REMOTE SENSING

Thermometry of lossy microstriplines by correlation radiometry. P. Waro and Y. Leroy p307

SATELLITE LINKS AND SPACE COMMUNICATION

Array-fed reconfigurable reflector for spacecraft applications. P.J.B. Clarricoats, A.D. Monk and H. Zhou p531
Correction of satellite beacon propagation data using radiometer measurements. W.L. Stutzman, F. Haidara and P.W. Remaklus p62
Prediction of attenuation on satellite–earth links for systems operating with low fade margins. P.A. Watson and Y.F. Hu p467

SIGNAL PROCESSING

Extended effective output noise temperatures of multiresponse systems. T. Larsen p393
Numerical simulations for frequency-selective screens with complementary elements. H. Wakabayashi, M. Kominami, H. Kusaka and H. Nakashima p477

SIMULATION

Accurate absorbing boundary conditions for the FDTD analysis of H-plane waveguide discontinuities. E.A. Navarro, L. Gallart, J.L. Cruz, B. Gimeno and V. Such p59
Electromagnetic imaging of infinite dielectric cylinders using a modified Born approximation and including *a priori* information on the unknown cross sections. S. Caorsi, G.L. Gragnani, M. Pastorino and M. Sartore p445
General localised junction model in the analysis of wire-to-plate junctions. B.M. Kolundžija and B.D. Popović p1
Modelling of arbitrarily shaped MMIC and hybrid planar circuits with a mixed waveguide model boundary integral method. J. Abdulnour, K. Wu, C. Akyel, L. Marchildon and R.G. Bosisio p495
Modelling of straight thin wires using time-domain electric field integral equations. A. Salinas, R. Gómez Martín, A. Rubio Bretones and I. Sánchez Garcia p123
Simplified treatment of wire-to-plate junctions with magnetic-current frill excitation. B.M. Kolundžija and B.D. Popović p133
Successive asymptotic waveform evaluation of lossy distributed networks with nonlinear terminations. R. Liu, Q.-J. Zhang and M. Nakhla p473
Technique for modelling resonant strip placed in the transverse plane of a rectangular waveguide. S.A. Adeniran p329

STABILITY

Modified determinations of stability criteria for accurate designing the linear two-port amplifiers. J.-C. Liu, S.-S. Bor, C.-C. Chang and P.-C. Lu p238

SUPERCONDUCTIVITY

Electrically controlled HTSC/ferroelectric coplanar waveguide. S.S. Gevorgian, D.I. Kaparkov and O.G. Vendik p501
Environmental coupling loss effects in superconducting HF loop antenna design. J.R. James and G. Andrasic p94

TRANSMISSION LINES

Capacitance of circularly symmetric via for microstrip transmission line. A.W. Mathis and C.M. Butler p265
Characteristic impedance of rectangular coaxial cone transmission line. K. Huang, W. Lin and Y. Lin p326
Frequency dependent transmission line loss in quasitransversal microwave filters. F. Huang p402
Method of lines for analysis of planar conductors with finite thickness. A. Papachristoforos p223
Novel method of calculating the characteristic impedance of a coaxial transmission line of arbitrary cross-section. X. Zhou p423
Quasi-static analysis of skewed transmission lines for MMIC applications. J.F. Carpentier, P. Pribetich and P. Kennis p246
Simplified Green's functions for calculating capacitance and inductance of multiconductor transmission lines in multilayered media. Y.L. Li and C.H. Liu p141

VERY LARGE SCALE INTEGRATION

Successive asymptotic waveform evaluation of lossy distributed networks with nonlinear terminations. R. Liu, Q.-J. Zhang and M. Nakhla p473

WAVEGUIDES AND WAVEGUIDE COMPONENTS

Broadband design of coaxial line/rectangular waveguide probe transition. R.B. Keam and A.G. Williamson p53
Characteristic impedance of rectangular coaxial cone transmission line. K. Huang, W. Lin and Y. Lin p326
Dyadic Green's functions for rectangular waveguide filled with longitudinally multilayered isotropic dielectric and their application. H. Jin, W. Lin and Y. Lin p504
Electrically controlled HTSC/ferroelectric coplanar waveguide. S.S. Gevorgian, D.I. Kaparkov and O.G. Vendik p501
Elliptical waveguide analysis using improved polynomial approximation. B.K. Wang, K.Y. Lam, M.S. Leong and P.S. Kooi p483
Optimisation of radiation efficiency for a transverse ground-plane slot in boxed-stripline. A.J. Sangster and P. Smith p509
Rigorous analysis of lunar waveguides with the boundary element method. F. Zhang and J. Fu p235
Scattering from a rectangular aperture in rectangular-to-circular and circular-to-circular waveguide junctions. E.I. Lavretskii and V.V. Bodrov p489

Scattering properties of discontinuities in NRD guide. S. Xu, X. Wu and T. Yoneyama p205
Simulating 3D waveguide discontinuities using a combination of Prony's method and FDTD with improved absorbing boundary conditions. L.A. Vielva, J.A. Pereda, A. Vegas and A. Prieto p127
Symmetrical five-port waveguide junction with −20 dB residual mismatch over waveguide bandwidth. S.P. Yeo and L. Qiao p101
Taking into account the edge condition in the problem of scattering from the circular aperture in circular-to-rectangular and rectangular-to-rectangular waveguide junctions. E.I. Lavretsky p45
Theoretical and experimental investigations on orthogonal mode coupler. X.-H. Jiang, W. Hong, Y.-Y. Chen and L. Han p261
Wave propagation along a fully or a partially loaded parallel plate chirowaveguide. H. Cory and S. Waxman p299